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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,730	01/23/2004	Jesse Wainright	CWRU-P01-022	7333

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EXAMINER

MAI, NGOCLAN THI

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 10/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/763,730

Applicant(s)

WAINRIGHT ET AL.

Examiner

Ngoclan T. Mai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23-25 is/are allowed.
- 6) ☒ Claim(s) 1-16, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 17-20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/19/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3-6, 10, 18, and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The addition of the word "type" to an otherwise definite expression AB_x alloy, AB/A₂B alloy and AB₂ alloy in claims 3-6 and 21 extends the scope of the expression so as to render it indefinite. *Ex parte Copenhaver*, 109 USPQ 118 (Bd. App. 1955).

Claim 3 is indefinite because it is not clear what "x" is.

Claims 10 and 18 contains the trademark/trade name NafionTM. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a type of polymer and, accordingly, the identification/description is indefinite.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3-4, 6, 7, 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Wu et al. (U.S. Patent No. 5,451,474).

Wu discloses a hydrogen-storage material comprising hydrogen storage alloy particles mechanical alloyed with a passivation material such as Pd in an amount of 10% by weight by mechanical shearing and mixing (col. 4, lines 38-41 and col. 5, lines 7-25.) The hydrogen storage alloy particles is an AB₅- or AB₂-type hydrogen storage alloy material (col. 3, lines 22-26 and claims 4 and 5) as recited in instant claim 3 and having constituent as recited in claim 4 (col. 5, lines 11-14) as well as alloy material having constituent as recited in claim 6 (col. 3, lines 26-33.)

As for claims 14 and 15, Wu does not teach the hydrogen storage alloy material retains its hydrogen sorption/desorption effectiveness after exposure to ambient air and water or to an aqueous solution of potassium hydroxide. However since the hydrogen storage alloy material of Wu is formed by the same materials and produced by the same method, i.e., mechanical alloying; the properties as recited in the instant claims would have inherently possessed by the teachings of the cited reference. Therefore, the burden is on the applicant to prove that the product of the prior art does not necessarily or inherently possess characteristics attributed to the claimed product. *In re Spade*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990), *In re Best*, 195 USPQ 430 and MPEP § 2112.01.

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5. Claims 1, 3, 6-8, 10, 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al. (U.S. Patent No. 6,332,908).

Lee discloses a surface modified hydrogen storage alloy formed by ball-milling flake metal powder together with hydrogen storage alloy powder to obtain a mixture powder, wherein flake type metal is added in an amount of 10% by weight of the alloy (col. 5, lines 8-10.) The flake type metal powder is Ni, Cu, Pd, and Cr (col. 2, lines 46-51) and the hydrogen storage alloy is an AB₂ or AB type hydrogen storage alloy (col. 2, lines 43-45.) Lee teaches in ball milling the powder collides with the balls to generate heat and so to proceed mechanical alloying owing to the heat (col. 3, lines 1-8.) As for claim 6 Lee teaches the AB₂-type alloy (col. 4, lines 1-53.) As for claims 8 and 10, Lee teaches adding binding agent such as PTFE to the powder mixture to form pellet-type electrode, col. 4, lines 54-56.

As for claims 14 and 15, Lee is silent about the hydrogen storage alloy material retains its hydrogen sorption/desorption effectiveness after exposure to ambient air and water or to an aqueous solution of potassium hydroxide. However since the hydrogen storage alloy material of Lee is formed by the same materials and produced by the same method, i.e., mechanical alloying; the properties as recited in the instant claims would have inherently possessed by the teachings of the cited references. Therefore, the burden is on the applicant to prove that the product of the prior art does not necessarily or inherently possess characteristics attributed to the claimed product. *In re Spade*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990), *In re Best*, 195 USPQ 430 and MPEP § 2112.01.

6. Claims 1, 7-8, 10, 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuji et al. (U.S. Patent No. 6,048,644).

Tsuji discloses a hydrogen storage alloy material containing hydrogen storage alloy particles having particle size of 20 micron or less and 10 wt% nickel powder bonded to the alloy particles by mechanically alloying, col. 5, lines 3-7 and col. 5, line 54 to col. 6, line 2. As for claims 8 and 10, Tsuji teaches adding polyethylene powder as a binding agent (col. 11, lines 54-59).

As for claim 14-15 Tsuji does not teach the hydrogen storage alloy material retains its hydrogen sorption/desorption effectiveness after exposure to ambient air and water or to an aqueous solution of potassium hydroxide. However since the hydrogen storage alloy material of Tsuji is formed by the same materials and produced by the same method, i.e., mechanical alloying, the properties as recited in the instant claims would have inherently possessed by the teachings of the cited references. Therefore, the burden is on the applicant to prove that the product of the prior art does not necessarily or inherently possess characteristics attributed to the claimed product. *In re Spade*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990), *In re Best*, 195 USPQ 430 and MPEP § 2112.01.

7. Claims 1-7, 14-16, 21 and 22 are rejected under 35 U.S.C. 102 (a) as being anticipated by Kanoya et al 2002/0033209 or 102(e) as being anticipated by Kanoya et al (U.S. Patent No. 6,656,246, now "Kanoya"). (Since the former is the publication of the latter, the following rejection is referenced by the latter.)

Kanoya discloses hydrogen absorbing alloy powder comprising a metal matrix and added-component and formed by mechanical alloying the metal matrix particles and the added component particles (col. 1, lines 52-58.) The hydrogen absorbing alloy used includes Ti-Fe alloy and the added-component include transition metal of group VIII (col. 3, lines 14-34.) The amount of added-component is between 0.1 to 5.0% by atom (col. 5, lines 4-6.) Although the reference teaches the amount of the transition metal in atomic percentage, it is the examiner's position that, when converted to weight percent, this amount inherently encompasses the claimed amount absent evidence to the contrary. In the alternative, no patentable distinction is seen to exist between the reference and the claimed invention in the absence of any evidence showing the contrary.

The metal matrix particles have particle size D and the added-component particles have particle size d, wherein the relationship between d and D is $d \leq D/6$ (col. 1, lines 59-61.) Metal matrix having particle size D of about 5 microns and added-component with particle size d of smaller than 834 nm (0.834 micron) are used (col. 1, lines 62-67.) The hydrogen absorbing alloy powder taught therefore is

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made from and comprises hydrogen-absorbing alloy particles and added-component particles wherein the particle sizes of the hydrogen-absorbing alloy and the added-component are within the size range of the instant claims 2 and 16.

As for claims 3-7, 21 and 22, Kanoya teaches the types of hydrogen absorbing or storage alloys (col. 5, lines 7-34.)

As for claim 14-15 Kanoya is silent about hydrogen storage alloy material retains its hydrogen sorption/desorption effectiveness after exposure to ambient air and water or to an aqueous solution of potassium hydroxide. However since the hydrogen storage alloy material of Kanoya is formed by the same materials and produced by the same method, i.e., mechanical alloying, the properties as recited in the instant claims would have inherently possessed by the teachings of the cited references. Therefore, the burden is on the applicant to prove that the product of the prior art does not necessarily or inherently possess characteristics attributed to the claimed product. *In re Spade*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990), *In re Best*, 195 USPQ 430 and MPEP § 2112.01.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee or Tsuji in view of Ikeda and 6,770,226.

Lee or Tsuji differs from the claims in that Lee or Tsuji does not teach forming electrode by adding a solvent to the mechanically alloying hydrogen storage material containing binder, the amount of binder as recited in claim 9, the type of binder as recited in claim 10 and the solvent as recited in claim 11 and solvent being removed as recited in claims 12.

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Ikeda teaches a method for forming electrode for alkali batteries comprising adding solvent and binder agent to the hydrogen storage material to form a slurry and applying the slurry to an electrically conductive core body to form a coating; the coated body is then dried to removed the solvent (Ikeda's abstract.) Ikeda teaches employing PEO as binder in an amount of 1% by mass with respect to the mass of the hydrogen-absorbing alloy, water as a solvent for PEO binder (col. 4, lines 20-27.) Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method of Ikeda to make electrode of Lee or Tsuji. It would also be obvious to one skilled in the art to employ the amount and type of binder as well as the type of solvent used by Ikeda to form the electrode of Lee or Tsuji.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee or Tsuji in view of Ikeda as applied to claim 11 above, and further in view of Hampden-Smith et al. (2002/0168570).

Lee or Tsuji in view of Ikeda differs from instant claim in that none of the references teaches solvent having low viscosity suitable for screen-printing and ink-jet printing application.

In making battery electrode it is known to applying battery powders to a substrate through the use of a thick-film paste, see Hampden-Smith [0181]. In the thick film process, a viscous paste that includes a functional particulate phase (e.g. a fine battery powder) is screen printed onto a substrate, [0183]. Ink-jet printing is another method for depositing the powders in a predetermined pattern. The powder is dispersed in a liquid medium and dispensed onto a substrate using an ink jet printing head that is computer controlled to produce a pattern, [0193]. Therefore it would have been obvious to one of skill in the art to employ well known techniques as disclosed by Hampden-Smith to form electrode of Lee of Tsuji.

11. Claims 17-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


12. Claims 23-25 are allowable.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoclan T. Mai whose telephone number is (571) 272-1246. The examiner can normally be reached on 9:30-6:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Ngoclan T. Mai
Primary Examiner
Art Unit 1742

n.m.